Properties of operations and the distributive law

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS ALGEBRA

HOW TO ANSWER TODAY

- **Property names.** Order swaps ($a + b = b + a$) → commutative. Brackets move ($(a+b)+c = a+(b+c)$) → associative. One spreads over two ($a(b+c) = ab+ac$) → distributive.
  $5 + 3 = 3 + 5$ → commutative · $2 \times (4 + 5) = 2 \times 4 + 2 \times 5$ → distributive

STRETCH PROBLEMS

1. On the school tour to the Cliffs of Moher, 5th class buy tickets for 9 pupils and snack packs for 2 pupils, with each ticket and each snack pack costing €7. Niamh writes the total cost as $7 \times (9 + 2) = 7 \times 9 + 7 \times 2$. Which property of operations does her equation show: commutative, associative, or distributive?

2. Mr Ó Briain is sorting the classroom store and writes this on the board: $(7 \times 9) \times 2 = 7 \times (9 \times 2)$. He asks 5th class which property of operations it shows. Is it the commutative, associative, or distributive property?

   > Which property of operations does this equation show: $(7 \times 9) \times 2 = 7 \times (9 \times 2)$? (Choose: commutative, associative, or distributive.)

3. At Camogie training under the floodlights, Aoife sets up 5 rows of 3 cones for a passing drill. Saoirse sets up 3 rows of 5 cones for the same drill, and notices both layouts have the same number of cones, so $5 \times 3 = 3 \times 5$. Which property of operations does this equation show: commutative, associative, or distributive?